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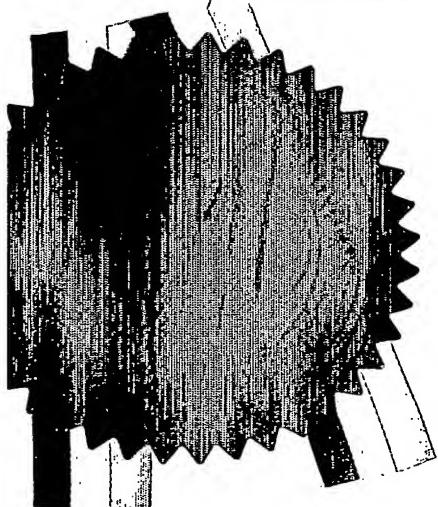
Application No. S2003/0214

Date of Filing 24 March 2003

Applicant Connolly James, an Irish citizen of c/o Waveware
Limited, Templemichael Business Park, Balinalee
Road, County Longford, Ireland.

Dated this 13th day of August 2003.

An officer authorised by the
Controller of Patents, Designs and Trademarks.



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S2003/0214

FORM NO. 1

Request for the Grant of a Patent

PATENTS ACT, 1992

The Applicant(s) named herein hereby request(s)

- the grant of a patent under Part II of the Act
 the grant of a short-term patent under Part III of the Act

on the basis of the information furnished hereunder.

1. Applicant(s)

Name James Connolly

Address c/o Waveware Limited
Templemiceal Business Park
Balinallee Road
Longford

Description/Nationality Irish

2. Title of Invention An Article of Footwear

3. Declaration of Priority on basis of previously filed application(s) for same invention (Sections 25 & 26)

<u>Previous filing date</u>	<u>Country in or for which filed</u>	<u>Filing No.</u>
15 July 2002	Ireland	s20020581

4. Identification of Inventor(s)

Name(s) of person(s) believed by Applicant(s) to be the inventor(s) James Connolly

Address c/o Waveware Limited
Templemiceal Business Park
Balinallee Road
Longford

S030214

5. Statement of right to be granted a patent (Section 17 (2) (b))

6. Items accompanying this Request – tick as appropriate

- (i) prescribed filing fee (€60)
- (ii) specification containing a description and claims
 - specification containing a description only
 - Drawings referred to in description or claims
- (iii) An abstract
- (iv) Copy of previous application(s) whose priority is claimed
- (v) Translation of previous application whose priority is claimed
- (vi) Authorisation of Agent (this may be given at 8 below if this Request is signed by the Applicant(s))

7. Divisional Application(s)

The following information is applicable to the present application which is made under Section 24-

Earlier Application No:

Filing Date:

8. Agent

The following are authorised to act as agent in all proceedings connected with the obtaining of a patent to which this request relates and in relation to any patent granted-

<u>Name</u>	<u>Address</u>
Naoise Gordon	Murgitroyd & Company Unit 1, Block 8 Blanchardstown Corporate Park Cruiseraft Road Dublin 15

9. Address for Service (if different from that at 8)

Signed Name(s): Naoise Gordon

Capacity (if applicant is a body corporate):

Date

24 March 2003

S030214

~~APPLICATION NO.~~~~SEARCHED _____ SERIALIZED _____ INDEXED _____ FILED _____~~

An Article of Footwear

Introduction

The invention relates to an article of footwear, and specifically a slipper. In particular, the invention relates to an article of footwear which is adapted to provide heat to a user's foot. The invention also relates to a method of heating a user's foot using the article of footwear of the invention.

There are a number of known shoes, boots or slippers of the type having material inserts or packs in the lining or sole, which are suitable for heating. These generally fall into one of three types. The first type consists of a natural material such as corn, wheat or nuts which is housed in an encapsulant which itself can be heated, along with the shoe in which it is carried, in a microwave. One problem with this type of material is that its heat retention characteristics are poor, as it stays warm for only about 15 minutes. Additionally, as the

natural material only holds a very small amount of water, the equilibrium temperature of the material does not get above 80°C. Further, upon heating, the water can escape from the natural material as water vapour resulting in a decrease in the amount of water over time and a consequential decrease in the equilibrium temperature of the material. Further, the nature of the material is such as to give off an odour during heating which for most people is unacceptable. A further, major, drawback of these types of products is that bunching can occur, this being the natural tendency of the material when agitated to migrate into low pressure areas of the article of footwear. Generally these areas are ones which do not require heat.

A further type of microwaveable insert comprises the use of a dessicant instead of a natural material. While the use of a dessicant overcomes the odour problem, it has been found to be ineffective in overcoming the heat retention or bunching problem. The heat retention problem is due, in part, to the small amounts of water that dessicant can hold.

A further type of microwaveable insert for shoes and slippers comprises an encapsulated gel. Generally these gels include a thickening agent, normally a super absorbent polymer. Due to the presence of a thickening agent, the gels have a very poor thermal conductivity, due to the fact that the liquid cannot generate convective currents. Thus, when heated in a microwave, hot spots can occur within the insert.

Due to the poor thermal conductivity within such products, it is generally necessary when microwaving the insert to microwave it for a period of time on one side, and then turn the product over and microwave it for a further period of time, with a view to homogenising the amount of heat dissipated from the surfaces of the insert. Often, to sufficiently microwave one of these products, three or more microwaving steps are required.

International Patent Application Number WO94/28834 in the name of JMK International Inc. describes (in Figures 3 and 4) a microwaveable slipper. The slipper comprises a number of microwaveable heating pads which are integrally built into the sole and upper portion of the shoe. As such, in order to heat the product it is necessary to insert the whole product into a microwave.

Statements of Invention

Surprisingly, the Applicant has realised a number of problems inherent in using the slipper disclosed in International Patent Application WO94/28843. A first problem is the problem of malodour being produced as a result of microwaving the whole slipper. As will be readily evident to the reader, as a user generally uses a slipper without socks, the slippers are prone to becoming soiled with sweat, dirt from the users feet, dead skin etc. Thus, when the slipper is heated, it is prone to producing a bad smell. This problem is further exacerbated by the

fact that most microwaves are predominantly used to heat or reheat food products. As such, one would be quite disinclined to place a food product in a microwave which had just been used to heat a slipper. Likewise, if the sole of the slipper has picked up any dirt, it is likely that the user will be less inclined to place it in a microwave.

Accordingly, the invention provides an article of footwear comprising an upper portion and a sole portion, the sole portion being connectable to the upper portion and including a pocket for receipt of a microwaveable heating pad, wherein the article is adapted for removal and insertion of the heating pad.

Thus, an article of footwear according to the invention obviates the problems described above due to the fact that the microwaveable heating pad may be easily removed from the article of footwear and placed into the microwave for heating in the absence of the article of footwear.

In a preferable embodiment of the invention, the upper portion and the sole portion are detachable along at least a portion of a circumference of the article to allow access to the pocket for insertion and removal of the microwaveable heating pad.

In one embodiment of the invention, the upper portion and the sole portion are connected by means of a detachable fastener, such as, for example, a

zip. Many other types of detachable fasteners are envisaged such as, for example, velcro, a hook and eye arrangement, buttons, press studs, and the like. In one embodiment of the invention, the openable fastener extends completely around the circumference of the article of footwear. Alternatively, the openable fastener may only extend along a portion of the article of footwear, such as, for example around a heel of the article of footwear.

In one embodiment of the invention the pocket is dimensioned for receipt of an insole-sized microwaveable heating pad.

Typically, the upper portion is adapted to at least partially enclose a user's foot, and includes a base upon which, in use, a user's foot rests. Generally, the base is formed from a fabric material.

In one particularly preferred embodiment of the invention, the article of footwear includes a solid, microwaveable, heating pad which is dimensioned to fit into the pocket of the article of footwear.

In one embodiment, the heating pad comprises a mixture of ferrite and silicone. Typically, the heating pad comprises a mixture of ferrite and silicone in a ratio of between 4:1 and 1:4 (W/W). In a preferred embodiment, the ratio of ferrite and silicone is approximately 2:1 (W/W).

Preferably the sole portion of the article of footwear includes an insulating layer located underneath the pocket. Typically the insulating layer comprises a foam cushion. Ideally, the foam cushion comprises EPDM foam. Suitably, the sole portion includes an outsole. In one embodiment, the outsole comprises a thermoplastic elastomer.

The invention also relates to an article of footwear comprising:

- an upper portion dimensioned to at least partially enclose a user's foot;
- a sole portion connectable with the upper portion; and
- a solid microwaveable insole-shaped heating pad, wherein the sole portion includes a pocket which is dimensioned for receipt of the heating pad and wherein the article is adapted for removal and insertion of the heating pad.

The invention also relates to a method of heating a foot comprising the steps of:

- providing an article of footwear according to the invention;
- removing the heating pad from the pocket of the article of footwear;
- heating the heating pad in a microwave for a suitable amount of time;
- inserting the thus-heated heating pad into the pocket of the article of footwear; and
- inserting the foot to be heated into the article of footwear.

Brief Description of the Drawings

The invention will be more clearly understood from the following description of an embodiment thereof, given by way of example only, with reference to the accompanying drawings in which:-

Fig 1a is a side-elevational view of an article of footwear according to the invention;

Fig 1b is an elevational view from an opposite side of the article footwear of Fig 1a;

Fig 2a is a side elevational view of the article of footwear of Fig 1a with the upper portion shown partially detached from the sole portion revealing a pocket into which a microwaveable heating pad is receivable;

Fig 2b is a view similar to Fig 2a showing a microwaveable heating pad partially inserted into the pocket of the sole portion;

Fig 3 is an exploded view of an article of footwear according to the invention;

Fig 4 is a plan view from above a sole portion forming part of the article of footwear of Fig 1a; and

Fig 5 is a sectional view of the sole portion of Fig 4 taken along the lines V-V of Fig 4.

Referring to the drawings, and initially to Fig 1, 2 and 3, there is illustrated an article of footwear, specifically a slipper, and indicated generally by the reference numeral 1. The slipper 1 comprises an

upper portion 2 which is shaped to partially enclose a users foot, and a sole portion 3 which includes a pocket 5 for receipt of a microwaveable heating pad 6. The upper portion 2 and sole portion 3 are connected by means of a detachable fastener in the form of a zip 7 which extends completely around a circumference of the slipper 1.

In more detail, and referring to Fig 3, the upper portion 2 is formed of a thick cotton plush material which at least partially encloses the users foot and includes a fabric base portion 4 upon which, in use, the user's foot abuts. A first part of the zip 7 extends round a circumference of the base 4 of the upper portion 2.

The sole portion 3 comprises an outsole 10 formed of a thermoplastic elastomer having a second part of the zip 7 attached along an upper circumference thereof. The sole portion 3 additionally includes an EPDM cushion 11 which is located within the outsole 10 and which, in use, insulates the heated insole and deflects heat upwards towards a foot of a user. The pocket 5 for receiving the microwaveable heating pad 6 is located within the sole portion 3 directly above the EPDM foam cushion 11. As is clearly illustrated in Fig's 3,4 and 5, the microwaveable heating pad has an insole shape and is dimensioned for fitting snugly within the pocket of the sole portion 3.

The microwaveable heating pad 6 comprises a 2:1 (W/W) mixture of ferrite and silicone, which is formed into the shape of an insole.

In use and referring to Fig's 2a and 2b, the microwaveable heating pad 6 is first removed from a slipper 1 by opening the zip 7 to reveal the heating pad 6 within the sole portion 3. The pad 6 is removed from the sole portion 3 and placed in a microwave for heating for a suitable period of time. Thus, for example, the pad may be heated by a microwave on full power for 30 seconds. Once heated the pad 6 is removed by the microwave and placed within the pocket 5 of the sole portion 3 of the slipper 1. The pad 6 is then fixed in place within the slipper 1 by attaching the upper portion 2 and the sole portion 3 by means of the zip 7. The slipper 1 may then be worn by a user to heat the users foot.

Although the present invention is described primarily with reference to a slipper, it will be appreciated that the invention can be applied to any article of footwear, such as, for example, a shoe, a boot, a running shoe, a football boot etc. Likewise, although the heating pad is described as comprising a mixture of ferrite and silicone, it will be appreciated that any other suitable solid microwaveable material may be used without departing from the invention. Moreover, it will be appreciated that the openable fastener connecting the upper portion and the sole portion does not need

to extend completely around the circumference of the article of footwear. In this regard, an opening may be provided on the article of footwear which extends around only a portion of the circumference of the article of footwear and through which the microwaveable heating pad may be inserted into the pocket. Such an opening may be closed by means of a zip, or by any other suitable closure such as, for example, a velcro fastener or the like.

The invention is not limited to the embodiments here and before described which may be varied in both construction and detail without departing from the

1 Claims

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3 1. An article of footwear comprising of an upper
4 portion and a sole portion, the sole portion being
5 connectable to the upper portion and including a
6 pocket for a receipt of a microwaveable heating pad,
7 wherein the article is adapted for removal and
8 insertion of the microwaveable heating pad.

9

10 2. An article of footwear as claimed in Claim 1 in
11 which the upper portion and the sole portion are
12 detachable along at least a portion of a
13 circumference of the article to allow access to the
14 pocket for insertion and removable of the
15 microwaveable heating pad.

16

17 3. An article of footwear as claimed in any
18 preceding Claim including a solid, microwaveable,
19 heating pad which is dimensioned to fit into the
20 pocket.

21

22 4. An article of footwear comprising:
23 -an upper portion dimensioned to at least partially
24 enclose a user's foot;
25 -a sole portion connectable with the upper portion;
26 and
27 -a solid, microwaveable, insole-shaped heating pad,
28 wherein the sole portion includes a pocket which is
29 dimensioned for receipt of the heating pad, and
30 wherein the article is adapted for removal and
31 insertion of the heating pad.

32

1 5. A method of heating a foot comprising the steps
2 of:

- 3 - providing an article of footwear according to
4 either of Claims 3 or 4;
5 - removing a heating pad from the pocket of the
6 article of footwear;
7 - heating the heating pad in a microwave for a
8 suitable amount of time;
9 - inserting the thus-heated heating pad into the
10 pocket of the article of footwear; and
11 - inserting the foot to be heated into the article
12 of footwear.

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1 Abstract

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3 "An Article of Footwear"

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6 An article of footwear comprises an upper portion
7 which is dimensioned to at least partially enclose a
8 user's foot, a sole portion connected to the upper
9 portion and a solid microwaveable, insole shaped
10 heating pad. The sole portion includes a pocket
11 which is dimensioned for receipt of the heating pad.
12 The article is adapted for removal and insertion of
13 the heating pad by means an openable fastener which
14 connects the upper portion from the sole portion.
15 The invention also relates to a method of heating a
16 foot comprising the step of providing an article of
17 footwear according to the invention, removing the
18 heating pad from the pocket of the article of
19 footwear, heating the heating pad in a microwave for
20 a suitable amount of time, inserting the heating pad
21 into the pocket of the article of footwear and
22 placing the article of footwear onto a users foot.

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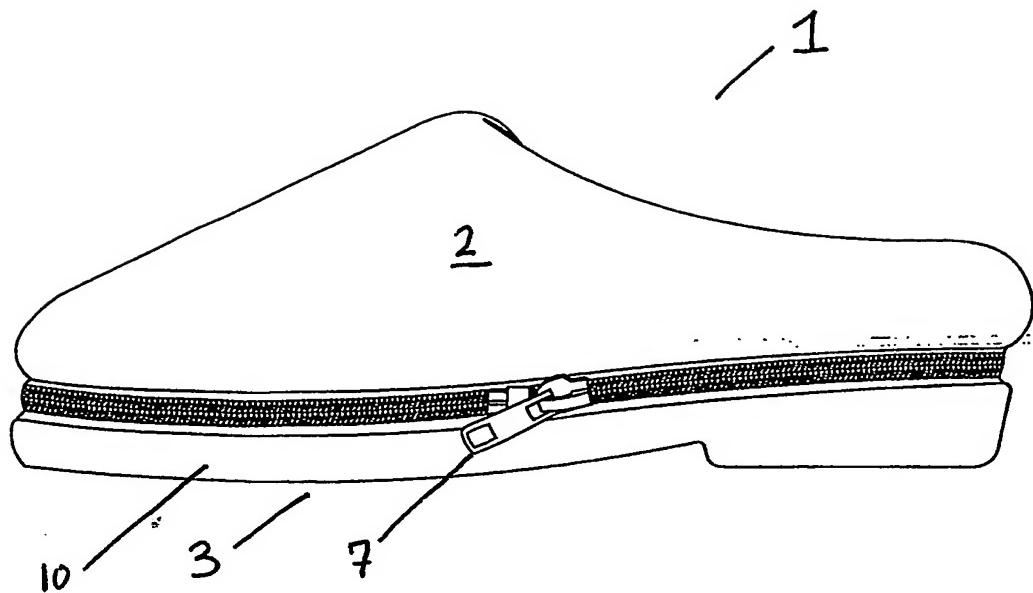


Fig. 1a

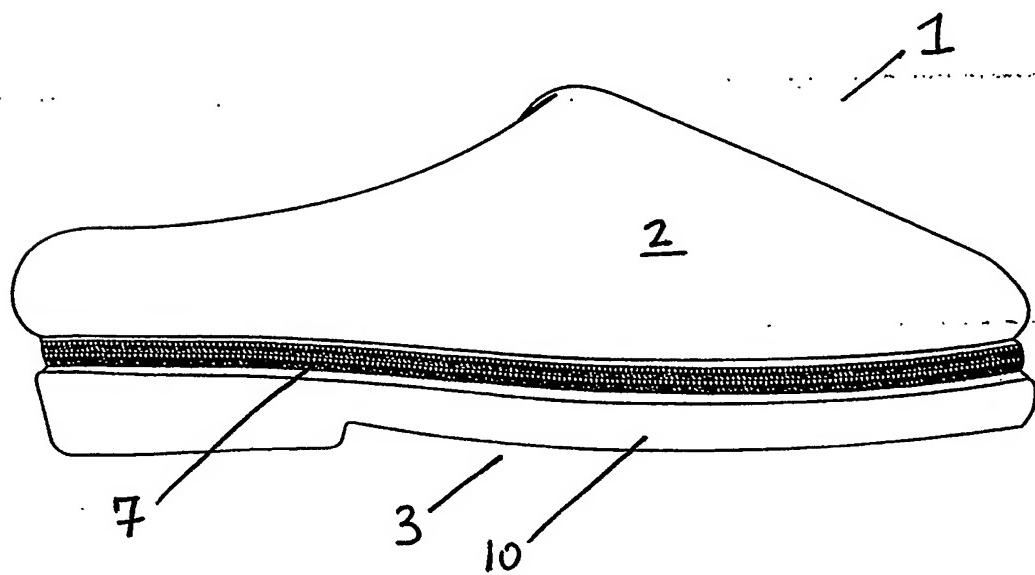


Fig. 1b

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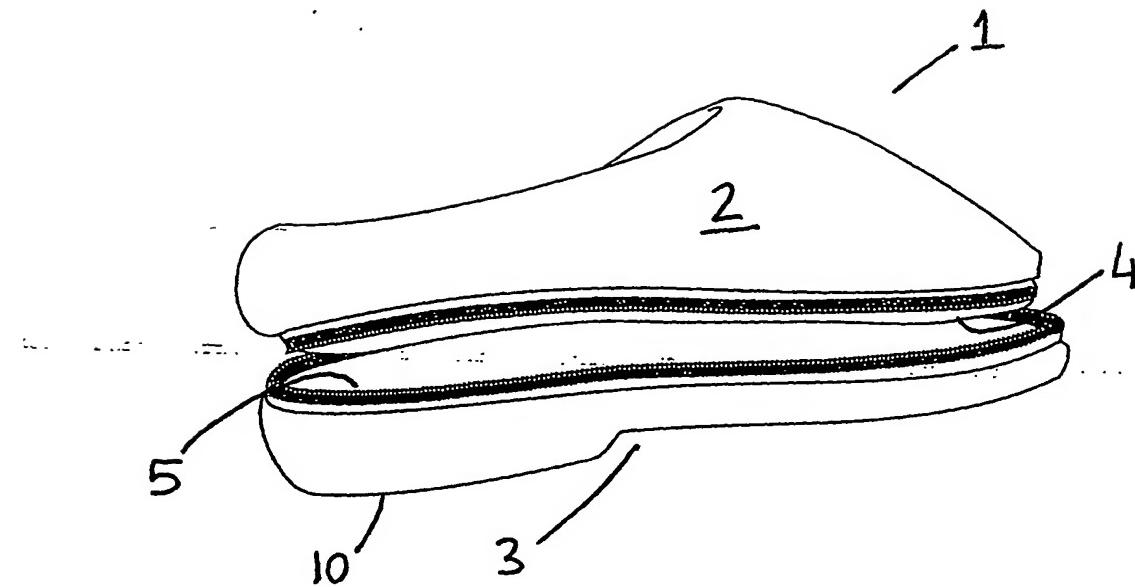


Fig. 2a

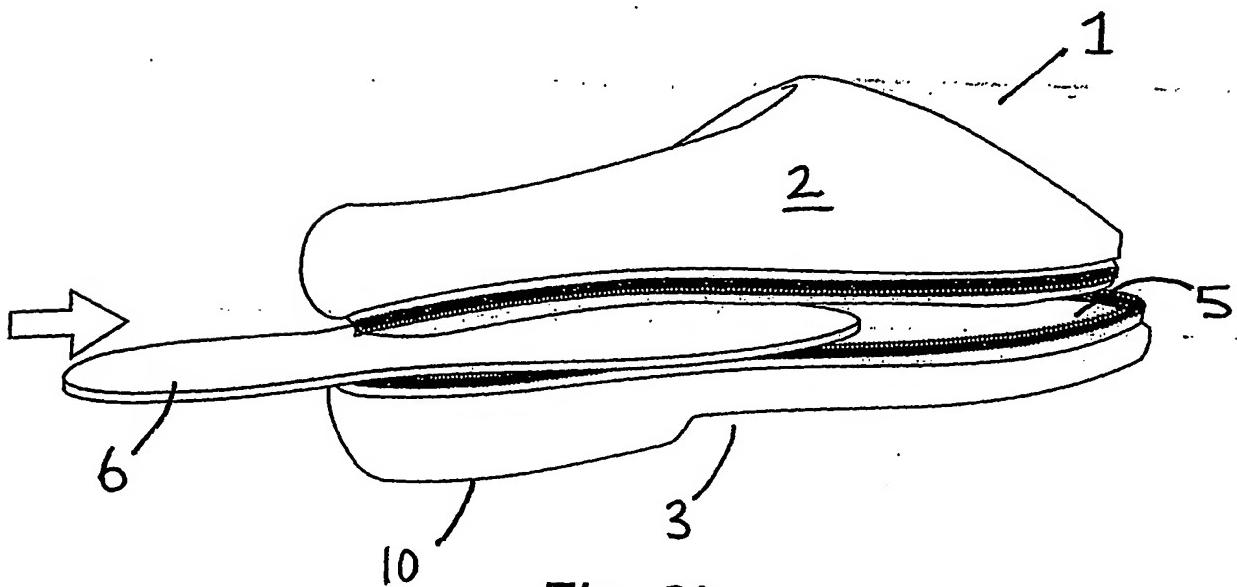


Fig. 2b

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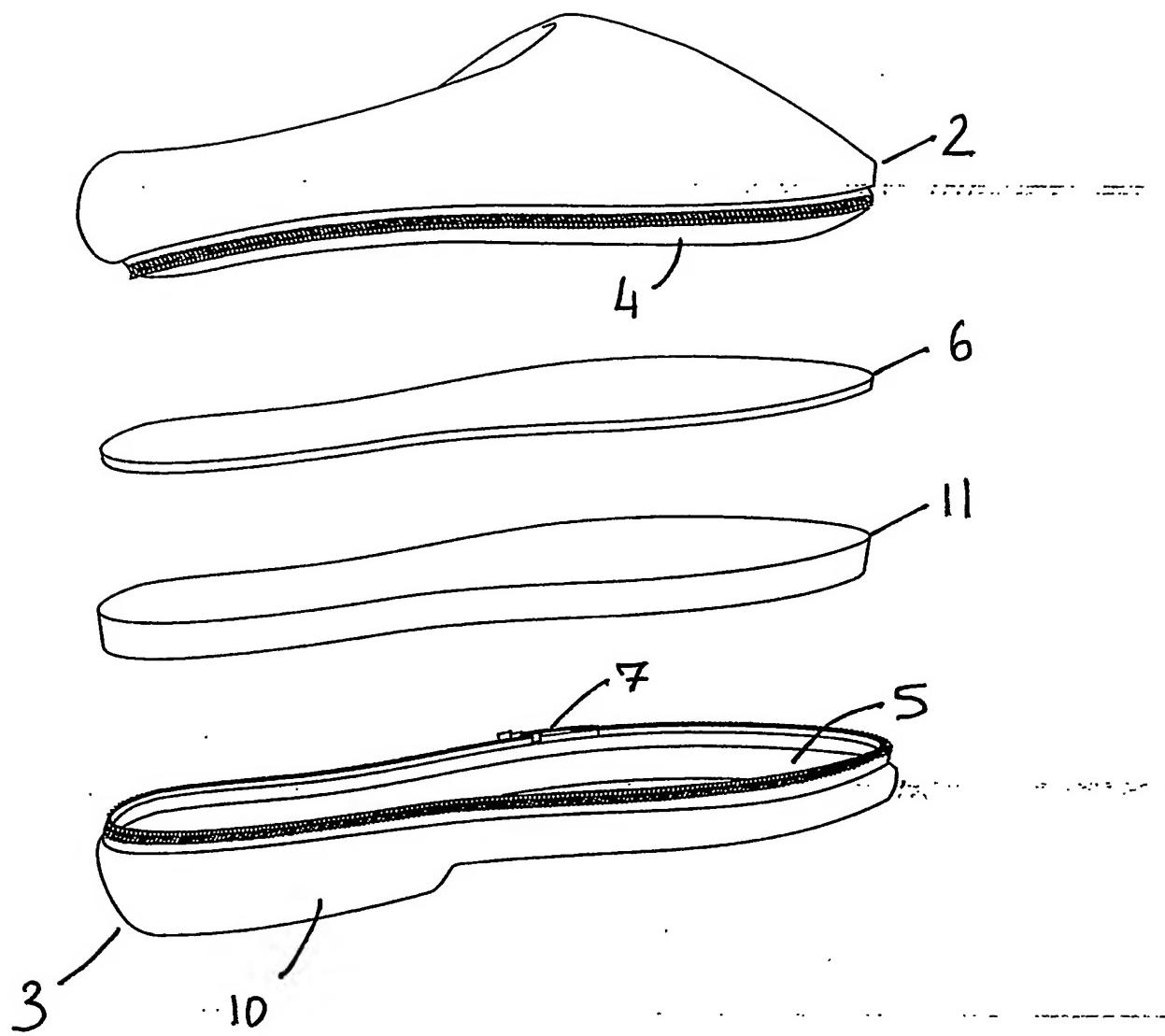
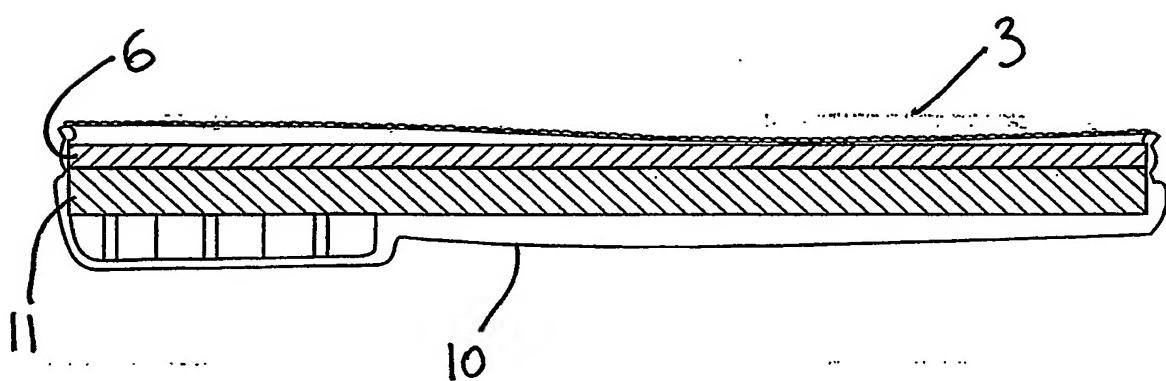
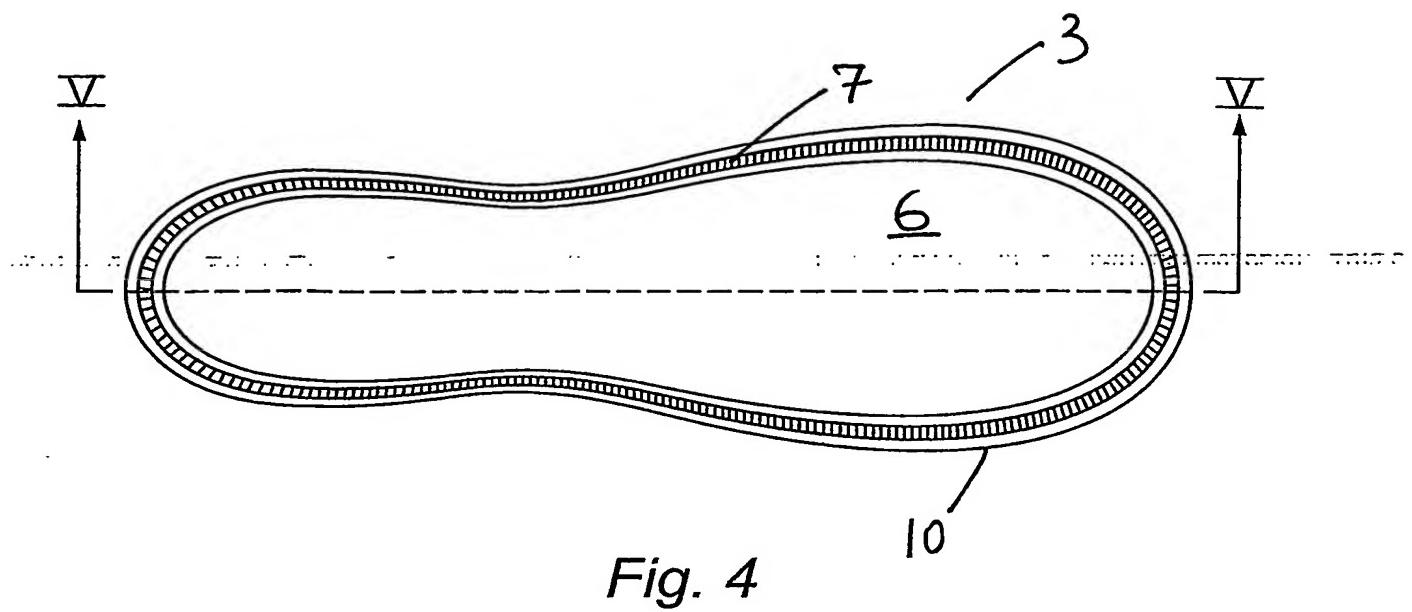


Fig. 3

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